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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/479,852	01/07/2000	ELFIDO COSS JR.	2000.021100	3612

23720 7590 10/29/2003

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EXAMINER

RODRIGUEZ, PAUL L

ART UNIT	PAPER NUMBER
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2125

DATE MAILED: 10/29/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/479,852

Applicant(s)

COSS JR. ET AL.

Examiner

Paul L Rodriguez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 January 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the appeal brief filed June 30, 2003. Claims 1-36 are presented for examination. Examiner would like to point out that the examiner of record has changed from Walter R. Swindell to examiner Paul Rodriguez. Upon taking over the application, the examiner has thoroughly reviewed the prosecution history and the application file and has decided to withdraw the finality of the previous office action dated January 1, 2003 and reopen prosecution based on the examiners findings.

2. In view of the appeal brief filed on 6/30/03, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 520. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities that have resulted due to the amended specification and drawings:

Page 10 line 33 refers to “sensor interface 520”, newly amended figure 5 labels as reference number 515.

Page 12 line 3 as amended, states “(“PEM,” not shown)”, examiner found PEM 542 shown in the figures and described on page 11 line 6.

Page 12 line 30 as amended, states “Plan Executor (“PE”) 542”, reference number 542 previously “Plan Execution Manager” on page 11 line 6.

Page 14 lines 1-2, state “...510 then transmits...to...535 resident on...430 over line 420”, reference numbers 510 and 535 are both on the same 430 and would not require transmission over 420 if in the same equipment.

Appropriate correction is required.

5. The examiner has provided few examples of the specification deficiencies in the above, however, the list of deficiencies may not be all inclusive. Applicant should refer to these as examples of deficiencies, review the original and amended text and drawings to ensure they are consistent with each other and make all the necessary corrections to eliminate the specification objections or drawing objections.

Claim Objections

6. Claims 10, 26, 32 and 35 are objected to because of the following informalities:

Claim 10 line 26 refers to “the store”, previously “a data store”, reference to the same element should remain consistent to avoid any possible antecedent problems in the claims.

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Claim 26 lines 1-2 refers to “the store”, previously “a data store”, reference to the same element should remain consistent to avoid any possible antecedent problems in the claims.

Claim 32 line 2 refers to “the identities” of available parameters, “the identities” is a positive recitation of the term “identities”, which is similar to stating, “said identities”, this could create an antecedent problem, would be better recited as “...storing identities...”

Claim 35 line 2 refers to “the fault detection means”, previously claimed “a fault detection control means”, reference to the same element should remain consistent to avoid any possible antecedent problems in the claims.

Appropriate correction is required.

7. The examiner has provided a number of examples of the claim deficiencies in the above, however, the list of deficiencies may not be all inclusive. Applicant should refer to these as examples of deficiencies and should make all the necessary corrections to eliminate the claim objections.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 34 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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9. Claim 34 recites the limitation "the data store" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102


10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-7, 23, 25-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Flinchbaugh et al (U.S. Pat 4,861,419). The claimed invention reads on Flinchbaugh et al as follows:

Flinchbaugh et al discloses (claim 1) a method, for dynamically generating trace data reports in a semiconductor fabrication process (col. 4 lines 7-18, col. 6 lines 44-49, col. 7 lines 11-20, col. 15 lines 50-52, col. 17 lines 49-68, defined by the applicant in the specification as "reports certain parameters during the tool's operation") employing fault detection control (col. 3 lines 39-56, col. 6 lines 42-49, 65-67, col. 8 lines 24-40, col. 17 lines 11-17), the method comprising receiving specified data for a trace data report (col. 6 lines 65-67), the specified data including at least one of a parameter, a trigger, and a frequency for the trace data report (col. 1 lines 49-65, col. 8 lines 32-34, col. 16 lines 41-49), automatically generating from a fault detection controller (reference number 40) a request to a report generator for the trace data report, the request including the specified data (col. 9 lines 3-22, ^{Col 102 28-11220} ~~col. 17 lines 49-68~~), formulating the trace data report responsive to the request (col. 4 line 53 – col. 5 line 6, col. 7 lines 11-20, col. 9 lines 16-22) and returning the formulated trace data report from the report generator based on the request (col. 4 line 53 – col. 5 line 6, col. 7 lines 11-20, col. 9 lines 3-22),



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(claim 23) a semiconductor fabrication processing system (figure 1) comprising a fabrication tool (reference number 10) capable of providing at least one of specified data and a trace data report (col. 6 lines 65-67, col. 8 lines 52-55, col. 16 lines 41-48), a fault detection controller (reference number 40) implementing a fault detection control (col. 9 lines 3-36), the fault detection controller being capable of automatically generating a request for the trace data report, the request including the specified data (col. 9 lines 3-22, col. 17 lines 49-68), a report generator capable of requesting at least one of the specified data and the trace data report from the fabrication tool (col. 6 lines 65-67, col. 8 lines 32-34, 52-55, col. 16 lines 41-48), and capable of, if the specified data is requested from the fabrication tool, providing the trace data report (col. 4 lines 53 – col. 5 line 6, col. 7 lines 11-20, col. 9 line 16-22), and an operator interface for receiving specified data for the trace data report (col. 5 lines 2-6, col. 7 lines 11-20, col. 9 lines 5-18, col. 17 lines 66-67), the specified data including at least one of a parameter, a trigger, and a frequency for the trace data report (col. 1 lines 49-65, col. 8 lines 32-34, col. 16 lines 41-49) and to which the trace data report may be returned from at least one of the report generator and the fabrication tool (col. 8 lines 52-55), (claim 2) wherein receiving the specified data for the trace data report includes receiving the specified data by manual input (col. 11 lines 6-10, col. 15 lines 44-52), (claim 3) wherein requesting the trace data report includes consulting a data store of available parameters (col. 18 lines 34-38), (claim 4, 26) wherein the data store comprises at least one of a database, a list, and a file (col. 18 lines 41-44), (claim 5, 27) wherein the report generator populates the data store with the available parameters (col. 19 lines 23-27), (claim 6) wherein formulating the trace data report responsive to the request includes gathering specified data from a fabrication tool (col. 6 lines 65-67, col. 8 lines 32-34, 52-55, col. 16 lines 41-48), (claim 25) further comprising a data store of available parameters that may be received as the

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specified data (col. 18 lines 34-50), (claim 28) wherein at least two of the fault detection controller, the operator interface, and the report generator reside on the same computer (reference number 40, col. 9 lines 22-28), and (claim 29) wherein the fault detection controller and the report generator reside on different computers (col. 9 lines 22-28, would be inherent).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 8-22, 24 and 30-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flinchbaugh et al (U.S. Pat 4,861,419) in view of Turner et al (U.S. Pat 5,576,629).

Flinchbaugh et al teaches most all of the instant invention as applied to claims 1-7, 23 and 25-29 above and also teaches a computer programmed to perform a method for generating data reports (reference number 40) and a computer readable, program storage medium encoded

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with instructions that when executed by a computer perform a method for generating data reports (col. 9 lines 3-28). Flinchbaugh et al fails to teach (claim 7, 15) a computer programmed to perform a method in an advanced process control semiconductor fabrication process, (claim 24, 31) wherein the operator interface includes a graphical user interface, (claim 30) an advanced process control, semiconductor fabrication processing system, comprising means for fabricating a wafer, a fabricating means being capable of providing at least one of specified data and a trace data report, means for implementing a fault detection control, the fault detection control means being capable of automatically generating a request and means for interfacing with an operator, through which an operator may specify the data.

Turner et al teaches (claim 7, 15) a computer programmed to perform a method in an advanced process control semiconductor fabrication process (abstract) (claim 24, 31) wherein the operator interface includes a graphical user interface (col. 8 lines 48-63, col. 10 lines 11-17), (claim 30) an advanced process control, semiconductor fabrication processing system (abstract), comprising means for fabricating a wafer (reference number 20), a fabricating means being capable of providing at least one of specified data and a trace data report (figures 11, 20-28), means for implementing a fault detection control (figure 9, col. 10 line 11 – col. 12 line 61), the fault detection control means being capable of automatically generating a request (reference number 128, 130, col. 10 lines 36-48) and means for interfacing with an operator (reference number 86, col. 8 lines 48-63, col. 10 lines 11-17), through which an operator may specify the data (col. 10 lines 11-17).

Flinchbaugh et al and Turner et al are analogous art because they are both related to fault detection and control in the fabrication of semiconductor devices.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the advanced process control operations of Turner et al in the abnormality detection apparatus and method of Flinchbaugh et al because Turner et al teaches a control application for a wide variety of electronic device fabrication, the precision of plasma processing that the present invention provides makes statistical process control (SPC) feasible for a wide variety of electronic device fabrication processes and significantly increase process uniformity for electronic devices (col. 4 lines 45-67).

Response to Arguments

14. Applicant's arguments with respect to claims 1-36 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jamieson et al (U.S. Pat 6,577,232) – teaches an advanced process control system, accessed with a GUI interface for the analysis of trace data.

Coss, Jr. et al (U.S. Pat 6,465,263) – teaches trace data monitoring, trace data is extracted from a processing tool for analysis and the results are used to control the processing of semiconductor devices.

Jang et al (U.S. Pat 6,438,441) – teaches semiconductor factory automation that displays trace data to an operator to determine if the processing of semiconductors is conforming to a standard.

Ogushi et al (U.S. Pat 6,385,497) – teaches a remote maintenance system that is used to generate reports when problems are detected.

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Wang et al (U.S. Pat 5,859,964) – teaches an advanced process control system that uses a browser to generate reports based upon trace data.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul L Rodriguez whose telephone number is (703) 305-7399. The examiner can normally be reached on 6:00 - 4:30 T-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P Picard can be reached on (703) 308-0538. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9600.



Paul L Rodriguez
Examiner
Art Unit 2125

PLR
10/22/03